

Remarks/Arguments

Responsive to the Official Action mailed May 5, 2004 in which claims 1-7, 9-12, and 14-17 of the present application were rejected and claims 8, 13, and 18 were objected to, Applicant respectfully requests reconsideration, reexamination and allowance of claims 1-7 and 9-18 in view of the above amendments and the following remarks.

First, the Examiner has objected to claim 13 because it failed to disclose the claim upon which it is dependent. Claim 13 has been amended to depend properly from claim 9. Next, claims 3 and 4 have been rejected under 35 U.S.C. §112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the limitation "the idler feed wheel" found in line 2 of claim 3 lacked sufficient antecedent basis (and claim 4 depends from claim 3). Claim 3 has been amended to depend from claim 2, which provides a proper antecedent basis.

The Examiner next has rejected claims 1, 3, 9-10, and 14-15 under 35 U.S.C. 102(b) as being anticipated by Gurak et al., U.S. Patent No. 5,333,438. The Examiner characterizes Gurak as teaching a feed system for a strapping machine having a strap supply (42, 52) and a strap chute (122), the strapping machine including a strapping head (106) disposed between the strap supply and the chute. Gurak's feed system purportedly comprises a strap path from the strap supply to the strapping head; a pair of tensioning wheels (120) disposed along the strap path proximal the strap supply; a pair of feed wheels (76) disposed along the strap path proximal the strapping head that rotate in one direction to feed the strap around the chute and in a reverse direction to retract the strap material; a feed wheel drive (78) operatively connected to one of the feed wheels; a tensioning wheel drive operably connected to one of the tensioning wheels; and a sensor (144, 110, 111).

In addition, the Examiner has rejected claims 4-7, 11-12, and 16-17 under 35 U.S.C. 103(a) as being unpatentable over Gurak et al. in view of Lüdtkke, U.S. Patent No. 6,032,440. The Examiner recognizes that the Gurak patent does not disclose a pair of tensioning wheels wherein one of the wheels is movable into and out of engagement with the opposite wheel of the pair, but

asserts that the Lüdtke patent teaches these missing elements. The Examiner has taken the position that it would have been obvious to one of ordinary skill in the art "to modify the tensioning wheels of Gurak et al. to the movable tensioning wheels of Lüdtke for the purpose of providing tensioning wheels that are adjustable from a position of engagement with the strap material and a position of disengagement."

Finally, the Examiner has rejected claims 2, 4-7, 11-12, and 16-17 under 35 U.S.C. 103(a) as being unpatentable over Gurak et al. in view of Koyama, U.S. Patent No. 5,379,576. The Examiner recognizes that the Gurak patent does not disclose a pair of feed wheels and a pair of tensioning wheels movable into and out of engagement with the opposite wheel of the pair, but asserts that the Koyama patent teaches these missing elements.

First, Applicant points out that claims 1, 3, 9, 11, 13-14, and 16 have been amended. Claim 8 has been canceled; Applicant has incorporated the elements of claim 8 into claim 1 so that at a minimum claims 1-7 are allowable.

The present invention is directed to a feed system for a strapping machine that can automatically detect a strap error or fault, stop strap retraction or take-up, and reefed strap into the strapping head following the error or fault. The feed system includes a strap path from the strap supply to a strapping head, a pair of tensioning wheels, and a pair of feed wheels defining a nip. A sensor disposed along the strap path generates a signal to indicate movement or lack thereof along the strap path. In a strapping cycle, strap material is conveyed around the strap chute by forward rotation of the feed wheels and then retracted around the load by reverse rotation of the feed wheels. The tensioning wheels then rotate forward to tension the strap around the load. This forward rotation of the tensioning wheels commences upon receipt of a lack-of-movement signal from the sensor following retraction of the strap material. In a fault condition, the sensor fails to generate a signal because the strap continues to move. When this occurs, the feed wheels cease rotating and the tensioning wheels rotate in a reverse direction to convey the strap into the nip between the feed wheels, so that the strap may be refed into the strapping head without operator intervention.

Applicant submits that the claims, as amended, are allowable over the art of record. Specifically, it is Applicant's position that the Gurak, Lüdtke, and Koyama patents, either individually or taken in any combination, do not anticipate or make obvious the claimed invention.

As to claims 1, 3, 9, 19, and 14-15, it is Applicant's position that Gurak does not anticipate the structure of Applicant's strapping machine feed system. Unlike the feed system disclosed in Gurak, which pulls a misfed strap completely out of the machine before alerting an operator or attempting to feed new strap through the entire path from a secondary pathway or "strap feed mechanism" (74 or 75) (col. 13, lines 38-62), the Applicant's feed system automatically boosts misfed strap into a nip defined by its feed wheels, without removing the strap from the system. As strap is pushed into the nip, the idler feed wheel moves, generating a signal to the machine controller indicating that the machine is ready to continue strapping. The Gurak patent does not describe a nip formed by its feed wheels into which strap is urged during a fault situation that allows the machine to resume strapping automatically, without removing the misfed strap from the machine or relying on operator intervention or a secondary strap pathway.

In addition, Gurak cannot anticipate claim 1 as amended because the Examiner has recognized that Gurak does not disclose a feed wheel drive and a tensioning drive that are reversible motors. Gurak further cannot anticipate claim 3 because claim 3 depends from claim 1.

As to claims 4-7, 11-12, and 16-17, the Examiner has characterized the addition of Lüdtke's movable tensioning wheels to Gurak's device as obvious to one having ordinary skill in the art. Applicant respectfully disagrees with the use of Gurak and Lüdtke in making this combination.

Lüdtke teaches a pressing roller (12) that may be turned away from a tension roller (11) "so that there is also no contact between strip 2 and the friction surface of pressing roller 12." (col. 5, lines 17-16) Like the Applicant's tensioning wheels (34, 36), Lüdtke's pressing and tension rollers are separated from one another during both the feeding and take-up steps of a strapping cycle, to permit the feed wheels to freely pull strap without frictional interference. The tension roller (11) and pressing roller (12) may be brought together during the tensioning operation, a separate step of the strapping cycle from the feeding and take-up portions. In contrast, Gurak's tension drive wheels

(120) must stay together at all times or neither the feeding nor the take-up portions of the strapping cycle will occur (“The tension drive wheels 120 are actuated in sequence so as to pull strap 38 into the strap take-up area 104.”) (col. 12, lines 60-62) Further, Gurak does not recite a tensioning step separate from the take-up step; Gurak folds those two steps into one, both controlled by the tension drive wheels (120). Gurak clearly teaches away from using movable tensioning wheels because both the feeding and take-up/tensioning steps of its feed system require static tensioning wheels.

As to claims 2, 4-7, 11-12, and 16-17, the Examiner has characterized the addition of Koyama’s movable tensioning wheels to Gurak’s device as obvious to one having ordinary skill in the art. Applicant respectfully disagrees with the use of Gurak and Koyama in making this combination.

The same arguments made with respect to the Examiner’s combination of Gurak with Lüdtke apply to the Examiner’s combination of Gurak with Koyama (see above). Gurak appears to plainly teach away from using movable tensioning wheels because both the feeding and take-up/tensioning steps of its feed system require static tensioning wheels to function.

It is Applicant’s position that Lüdtke and Koyama, rather than supplementing Gurak, explicitly teach away from the present invention. Applicant submits that the combination of Lüdtke or Koyama with Gurak simply could not have made the present invention obvious to one of skill in the art at the time it was made.

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Amendment A

Should the Examiner believe that a telephone interview would expedite prosecution and allowance of the present application, or address any outstanding formal issues, he is respectfully requested to contact the undersigned.

Respectfully submitted,

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